

What is claimed is:

1. An electromechanical functional module comprising:
  - at least one transducer having a first electrode and a second electrode;
  - 5 at least one upper fiber cover layer, which is nonconducting and is positioned over the at least one transducer;
  - at least one lower fiber cover layer, which is nonconducting and is positioned below the at least one transducer;
  - at least one fiber interlayer, which is nonconducting with at least one cut-
  - 10 out for accommodating the at least one transducer;
  - at least one upper electric contract strip that is integrally connected to the at least one upper fiber cover layer and in contact with the first electrode of the at least one transducer; and
  - at least one lower electric contract strip that is integrally connected to the at
  - 15 least one lower fiber cover layer and in contact with the second electrode of the at least one transducer, wherein the at least one upper fiber cover layer, the at least one lower fiber cover layer and the at least one transducer are laminated together.
2. The electromechanical functional module according to claim 1, wherein
- 20 the at least one upper electric contract strip includes woven elastic and the at least one lower electric contract strip includes woven elastic.
3. The electromechanical functional module according to claim 1, wherein
- the at least one upper electric contract strip that is integrally connected to the at
- 25 least one upper fiber cover layer substantially covers the first electrode of the at least one transducer and the at least one lower electric contract strip that is integrally connected to the at least one lower fiber cover layer substantially covers the second electrode of the at least one transducer.

4. The electromechanical functional module according to claim 1, wherein the at least one upper electric contract strip and the at least one lower electric contract strip includes carbon fibers.

5 5. The electromechanical functional module according to claim 4, wherein the carbon fibers are woven.

6. The electromechanical functional module according to claim 1, wherein the at least one upper electric contract strip and the at least one lower electric  
10 contract strip includes metal wires.

7. The electromechanical functional module according to claim 6, wherein the metal wires are woven.

15 8. The electromechanical functional module according to claim 1, wherein the at least one upper fiber cover layer, the at least one lower fiber cover layer and the at least one fiber interlayer are laminated together to form a fiber composite.

9. The electromechanical functional module according to claim 8, wherein  
20 the laminated fiber composite includes a resin.

10. The electromechanical functional module according to claim 1, wherein the at least one transducer includes a piezoceramic.

25 11. The electromechanical functional module according to claim 1, wherein the at least one transducer includes an electrostrictive.

12. The electromechanical functional module according to claim 1, wherein the at least one upper fiber cover layer, the at least one lower fiber cover  
30 layer and the at least one fiber interlayer includes polyester felt.

13. A process for producing an electromechanical functional module, which comprises:

laminating at least one upper electric contract strip to at least one upper  
5 fiber cover layer;

laminating at least one lower woven contract strip to at least one lower fiber cover layer;

positioning at least one transducer in a cut-out within at least one nonconducting fiber interlayer;

10 positioning the at least one upper fiber cover layer, which is nonconducting, over the at least one transducer;

positioning the at least one lower fiber cover layer, which is nonconducting, below the at least one transducer; and

15 injecting resin into the combination of the at least one transducer, the at least one upper fiber cover layer, the at least one lower fiber cover layer, and the least one fiber interlayer.

14. The process for producing an electromechanical functional module according to Claim 13, wherein the step of laminating at least one upper electric  
20 contract strip to at least one upper fiber cover layer includes utilizing a resin and the step of laminating at least one lower electric contract strip to at least one lower fiber cover layer includes utilizing a resin.

15. The process for producing an electromechanical functional module  
25 according to Claim 13, wherein the at least one upper electric contract strip includes woven elastic and the at least one lower electric contract strip includes woven elastic.

16. The process for producing an electromechanical functional module according to Claim 13, wherein the at least one upper electric contract strip includes carbon fibers and the at least one lower electric contract strip includes carbon fibers.

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17. The process for producing an electromechanical functional module according to Claim 13, wherein the at least one upper electric contract strip includes metal wires and the at least one lower electric contract strip includes metal wires.

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18. The process for producing an electromechanical functional module according to Claim 13, wherein the resin includes an epoxide resin with thermoplastic qualities.

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19. The process for producing an electromechanical functional module according to Claim 13, wherein the step of injecting resin into the combination of the at least one transducer, the at least one upper fiber cover layer, the at least one lower fiber cover layer, and the least one fiber interlayer includes utilizing a resin matrix

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20. The process for producing an electromechanical functional module according to Claim 13, wherein the step of injecting resin into the combination of the at least one transducer, the at least one upper fiber cover layer, the at least one lower fiber cover layer, and the least one fiber interlayer includes applying a

25 vacuum.